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Decreasing Postpartum Hemorrhage within a Maternal Child Health Department

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Section I. Abstract

Problem: Postpartum hemorrhage (PPH) is the leading cause of maternal morbidity and mortality worldwide (Main et al., 2015). The national incidence of PPH is estimated at approximately 3% of all births (Marshall et al., 2018). A data analysis conducted in a maternal child health (MCH) department showed the total rate of PPH in 2019 was 10.8%. The incidence of PPH within this microsystem is significantly above the national average, indicating there is a substantial disparity in the care provided.

Context: An analysis of the MCH department showed an eagerness for change concerning PPH. The MCH staff have voiced safety concerns and inquiries regarding the disproportionate number of PPHs within the microsystem. Providers are treating more obstetrical hemorrhage emergencies and managing longer lengths of stay for their patients. Financially, the budget has been affected. The SWOT analysis and ROI assessment proved this quality improvement project to be beneficial in closing the quality gap.

Intervention: The project implemented the use of an evidence-based standardized debriefing tool to use after every PPH. The tool has been adapted from the California Maternal Quality Care Collaborative Postpartum Hemorrhage Toolkit. The debrief will include all members of the care team involved in the PPH. This debrief will be facilitated by the assistant nurse manager on shift during the hemorrhage. Once completed, the debrief tool will be collected by the PPH taskforce members and will be reviewed at every bi-monthly meeting.

Measures: The process measures of the project include the ANM on unit facilitating the debrief will all members of the care team. Once completed, the debrief sheets are filed in a confidential box for the PPH Task Force members to collect and review. Balancing measures include inability of all members of the care team being present for the debrief leading to inaccurate debrief

details; lack of time to complete debrief post critical event; and staffing issues leading to the absence of a debrief facilitator.

Results: The test period began February 1, 2020, and finished April 30, 2020. The goal of 40% debrief rate was achieved two out of three months; however, the overall debrief percentage was 32% which falls below the aim percentage. Additionally, the PPH rate remained steady over the first two months of the test period and then increased during the final month. The average PPH rate during the test period was 9.4%.

Conclusion: The benefits of utilizing the PPH debrief tool were attained. In review of each completed debrief form, systems issues and practice improvements were identified. The information provided has led to the discovery of trends allowing for early identification of patients who may hemorrhage. The debriefs have had a positive response from the staff and have showed improvement in team dynamics. The PPH taskforce will continue to utilize the PPH debrief tools to promote evidenced-based care practices and ensure that the MCH department provides the highest level of care to every patient it serves.

Section II: Introduction

According to the World Health Organization, in 2010, the United States ranked 50th among all countries for maternal mortality (Bingham, 2012). Postpartum hemorrhage (PPH) is the leading cause of maternal morbidity and mortality worldwide. In the United States, the incidence of PPH is increasing (Main et al., 2015). Research indicates that PPH may be preventable (Main et al., 2018). Although globally, there has been a decline in maternal mortality, over the past 20 years, there has been an increase in maternal morbidity and the ratio of maternal mortality in the United States (Main et al., 2018). There has been a national call for action, as data show that 50% of all maternal deaths are preventable (Main et al., 2018).

In California, research indicates that the leading causes of pregnancy-related deaths are cardiovascular disease, preeclampsia or eclampsia, hemorrhage, venous thromboembolism, and amniotic fluid embolism (Main et al., 2015). Of the leading causes of maternal death, hemorrhage had the highest rate of preventability with facility contributing factors, such as ineffective medication, delayed response to clinical warning signs, and inadequate blood product utilization. Research shows that improving the assessment and management of PPH dramatically reduces the incidence of obstetric mortality and morbidity (Main et al., 2015).

Problem Description

The national incidence of PPH is estimated at approximately 3% of all births (Marshall et al., 2018). PPH is defined as a blood loss of 1,000 ml or greater; blood loss for vaginal delivery of 500 ml or greater is considered significant and requires close monitoring (McGovern et al., 2017). A data analysis conducted in a maternal child health (MCH) department showed the total rate of PPH in 2019 was 10.8%. The incidence of PPH within this microsystem is significantly above the national average, indicating there is a substantial disparity in the care provided.

An analysis of the MCH department shows an eagerness for change concerning this quality gap. The MCH staff have voiced safety concerns and inquiries regarding the disproportionate number of PPHs within the microsystem. Providers are treating more obstetrical hemorrhage emergencies and managing longer lengths of stay for their patients. Financially, the budget has been affected by the need to increase staffing ratios due to higher acuity patients; thus, department administration is emphasizing improvement to reduce budget exceeding outcomes. Foremost, the MCH department holds high standards in the quality of care provided; the mission and values of this microsystem are the foundation of the need for change.

There are several driving forces behind the call to action for PPH reduction and management. Data show that PPH leads to significantly longer lengths of stay for patients (Marshall et al., 2018). Increased length of stay (LOS) can cause staffing issues, impact room availability, increase medical costs, and decrease patient satisfaction (Marshall et al., 2018). The increase in PPH leads to higher acuity patient ratios, which also affects staffing and staff satisfaction. In addition, the impact of having significantly higher PPH rates can lead to patient concern and decreased hospital quality metric scores (Marshall et al., 2018).

A reduction in the percentage of patients experiencing PPH would lead to decreased LOS, lower patient acuity, decreased use of medications, and decreased need for blood transfusions. Additionally, it would lead to increased patient satisfaction, increased ability for mothers to bond with their babies, better bed management, and the ability to care for the maternal child population in the community. Furthermore, fewer PPHs would decrease trauma associated with emergencies and care of high acuity patients, decrease staff burnout due to the constant need for overtime/extra shifts to maintain staffing ratios, and increase staff confidence in the department's ability to provide the highest quality patient care. Moreover, a decline in PPH can lead to

improved hospital reputation and increased patient satisfaction scores; therefore, the global aim for this quality improvement (QI) project was to decrease the annual rate of PPH in the MCH department.

Available Knowledge

PICOT Question

In a maternal child health department (P), does the implementation of a standardized critical event debrief process (I), compared to no debrief (C), improve clinical care and reduction of postpartum hemorrhage (O)?

In February 2020, a thorough electronic database search was conducted to gather evidence regarding evidence-based practice involving the use of standardized debriefing after critical events, specifically PPH. The databases searched included: Cochrane Database of Systematic Reviews, PubMed, and CINAHL Complete. The databases were searched utilizing the following search terms: *postpartum hemorrhage, debrief, TeamSTEPPs, emergency, critical event, blood loss*. These terms were searched in a variety of combinations. To narrow the search, several filters were set, including systematic reviews, meta-analysis, randomized-controlled trials, English language, peer-reviewed, and timeframe set to the years 2010 through 2020.

Research articles were limited when combining PPH and debriefing; however, debriefing was found in abundance when referring to other critical events. As the goal of the search was to determine the impact of debriefing on PPH, it was critical to utilize the articles that specifically included PPH; however, articles referencing debriefing after other types of critical events were also included in the synthesis. Of the six articles retrieved, three expert opinion, one systematic review, one quantitative meta-analysis, and one mentor-model QI article were reviewed and

synthesized. Using the Johns Hopkins research appraisal tool, four of the articles were rated LVA, one was LIA, and one was LIC.

Review of the Literature

A synthesis of the literature showed the utilization of multidisciplinary debriefing strengthens team dynamics and improves patient outcomes during and after critical events. TeamSTEPPs was found to increase safety, decrease errors, and improve teamwork. One of the primary components of TeamSTEPPS is debriefing; thus, it was proven to have positive outcomes when used (Plonien & Williams, 2015). Evidence also showed that post-event debriefs aided in developing and maintaining a culture of safety, allowed for the discovery of systems issues, and led to quality care improvements (Campbell et al., 2016). When reviewing the role of debriefing in PPH, research showed that women experienced a reduction in severe maternal mortality and morbidity in hospitals that utilized PPH debriefing (Main et al., 2017). Furthermore, the California Maternal Quality Care Collaborative (CMQCC, 2015), an organization that provides evidence-based recommendations for maternal care practices in the State of California, developed a postpartum hemorrhage toolkit including a debrief tool to utilize after postpartum hemorrhage. The recommendation, per the CMQCC, is to initiate a multidisciplinary review of the PPH to discuss patient medical care, systems issues, and team dynamics and communication. Though the search yielded a limited number of articles, the information recovered is found to be generalizable and adaptable to any type of critical event (see Appendix A).

Rationale

The foundation of the PPH QI project was Kotter's eight-step process for leading large-scale change. Kotter's change model is a process of eight sequential steps: tension for change,

coalition, vision, communication, empowerment, early success, expanding change, and grounding (Nelson et al., 2007). According to Nelson et al. (2007), Kotter's model "offers a change process comprising sequential steps that often overlap, run in parallel, and interact with one another" (p. 82).

Tension for change was developed by providing the microsystem-specific data to the stakeholders to encourage a sense of urgency. Bringing together a multidisciplinary team to act as a coalition served as the taskforce for change. This taskforce established the vision for the QI project and developed strategies to reach that vision. The members of the taskforce communicated the QI vision and strategies to the stakeholders. The action plan strategies were utilized by the stakeholders, thus generating empowerment to be active participants in the QI project. Continual evaluation of progress will produce an environment of acknowledging and celebrating success and improvement. As the QI project evolves and change develops, the strategies will be implemented beyond the initial microsystem and eventually may be integrated as a regional standard. The conclusion of the QI project would come with the indoctrination of the methods and strategies developed by the taskforce to the care standards within the microsystem culture (Nelson et al., 2007).

Specific Project Aim

By May 1, 2020, the use of a standardized postpartum hemorrhage critical event debrief tool will increase from 0% to 40% of all postpartum hemorrhages within the maternal child health department

Section III: Methods

Context

Microsystem Assessment

This microsystem is located within a leading healthcare system serving approximately 11.8 million members nationwide. The hospital is in the Northern California region and is licensed for 173 beds (Kaiser Permanente [KP], 2018). The MCH department is one of the departments within this hospital. The MCH department encompasses four units: labor and delivery (L&D), postpartum, intermediate care nursery, and pediatrics. This QI project focused on the L&D and postpartum departments specifically. The L&D department has eight labor beds, two triage beds, two surgery recovery beds, and two operating rooms. The postpartum unit is comprised of 15 patient rooms and a well-baby nursery. The L&D unit has approximately 2,000 deliveries a year, averaging 150-200 deliveries per month (KP, 2018). According to the 2015 Leapfrog Group (2015) survey, the 2015 cesarean section rate was 23.4%. The primary patient population who deliver at this facility are those with low-risk pregnancies and are greater than 34 weeks gestation.

Culture Assessment

The MCH department is made up of a multidisciplinary team including physicians (OB/GYN, family medicine, pediatrics), certified nurse midwives, anesthesiologists, registered nurses (RNs), obstetrical scrub technicians, unit secretaries, assistant nurse managers (ANMs), nurse managers, and a department director. Although there is a departmental emphasis on teamwork and the staff undergoes annual teamwork training, over the past year, there has been a decline in positive unit culture. The leadership team is currently utilizing a third-party

organization to improve the overall department morale and culture to improve teamwork and staff engagement.

SWOT Analysis

A SWOT (strengths, weaknesses, opportunities, and threats) analysis of the QI project yielded exceedingly higher benefits than costs. The strengths include increased dialogue among a multidisciplinary team to improve the PPH rate within the microsystem. Recognizing systems errors and ineffective care practices allows for an improvement in the management of PPH. Additionally, the project would improve teamwork dynamics by utilizing a TeamSTEPPs approach to emergency debriefing. The weaknesses include lack of time after the critical event to complete the debrief. Furthermore, there is a risk that not all members of the care team would be present for the debrief; thus, the debrief would not provide a full picture of the event and possible inaccuracy of the debrief details. The opportunities generated from the use of debriefing would be to recognize areas of PPH management that may require updating and/or changing of policies. The debriefs provide the ability to recognize disparities in care practices and allow for education regarding best practices. Furthermore, the debriefing allows for the correction of systems issues. Staffing issues are a threat to the success of the utilization of the debriefing tool. If a staff member is not available to initiate and facilitate the debrief, it may not be completed, leading to inconsistency in completion of debriefing. Although the project does contain some risk, the overall opportunities greatly impact the global aim of the reduction of PPH within this microsystem (see Appendix B).

Return on Investment

The budget for this project is exceptionally low in comparison to cost savings. The costs associated with the project include administrative supplies, such as paper and copy ink to

maintain the supply of debrief tool forms. On average, each unit will have 20 copies on hand and will replenish the supply when needed. This cost is budgeted in the operational department expenditure. Additionally, the budget includes the hourly rate for the nurses participating in the PPH taskforce meetings. There are four RNs on the committee; on average, the hourly rate for an RN is $80. The bi-monthly PPH taskforce meetings are two hours in duration; therefore, the total cost of RN attendance at the meetings for the calendar year of 2020 will be $3,840. All other members of the PPH taskforce are salaried, and their meeting hours will not incur an additional cost. Lastly, staff education will take place at the annual skills day PPH drill. This cost has already been budgeted and will not lead to additional expense (see Appendix C).

There may be unforeseen costs associated with the debriefing conversations, if staff members stay overtime to complete the debrief. These instances would require approval from the ANM on the unit at the time of the debrief. If a debrief occurs at the end of the shift, staff members may stay to be present for the debrief, which could lead to overtime pay. The goal would be to prevent this from occurring by arranging for the debrief to be at a time when no members of the team would be on overtime. An evaluation of incremental overtime would be necessary to determine if any overtime costs were associated with debriefing.

The budgeted cost per day for an OB/L&D patient is $3,400. An average LOS for this patient population is two days, totaling at $6,800. Patients who have had a PPH generally have a longer LOS, as they require additional monitoring to ensure they are stabile for discharge. Using the average cost per day, a patient staying four days would cost $13,600. Decreasing the rate of PPH would lead to decreased LOS for patients and would decrease costs (see Appendix D).

Intervention

The goal of this project was to initiate change and reinforce best practices to ensure the MCH department is providing the highest quality, evidence-based care to every patient. The project implemented the use of an evidence-based standardized debriefing tool to use after every PPH. The tool was adapted from the CMQCC Postpartum Hemorrhage Toolkit (see Appendix E, Figure 1). The debrief includes all members of the care team involved in the PPH. During the debriefing, the group discusses the aspects of care that went well, areas that could be improved, systems/supply issues that may have led to a delay in care or negative outcomes, and teamwork skills.

The PPH taskforce educated all staff about the use of the debrief tool following every PPH. Copies of the debrief tool were filed in the L&D and postpartum units. At the time of a PPH, the staff alerted the ANM on duty. The ANM obtained a debrief tool form to use while facilitating the debrief conversation. The conversation includes all members of the care team and is completed as soon as safe to do so after the PPH. The completed form is filed in the ANM's office to be reviewed by the PPH taskforce. The review will allow for discussion of recommendations for practice changes or correction of systems/supply issues to better manage PPHs and ultimately decrease PPHs from happening in the future.

Study of the Intervention

PPH data is obtained from diagnosis codes obtained by the department data analyst to compare baseline data with end-of-year data. Throughout the change process, the MCH ANMs also completed a tracking log documenting all patients who experienced a PPH. This log was updated every shift after a PPH occurred. The logs were reviewed every three months and allowed for the tracking of trends.

The PPH taskforce members collected the debrief tool sheets after completion post-hemorrhage. Weekly, the PPH tool sheets were filed to be reviewed in depth at the conclusion of the test period. After three months of implementation, the PPH taskforce compared the number of debriefings completed to the number of PPHs during that timeframe to determine the percentage of time a debrief is completed. Additionally, the PPH taskforce reviewed the data from the debrief forms to determine areas for improvement, the need for practice changes, staff education, and/or systems issues corrections. These areas will be addressed during the annual PPH mock code in June 2020. At this mock code, the department educator will address care practices requiring reinforcement and any practice changes deemed necessary, as well as TeamSTEPPs skills.

Measures

The outcome measure of the QI project is the completion of a standardized PPH debrief tool sheet; the target is 40% of all PPHs debriefed. In addition, the project measured the percentage of total PPHs occurring in the MCH department. The process measures include the ANM on unit facilitating the debrief with all members of the care team. Additionally, the ANM will log and track all PPHs occurring within the department to determine the percentage of PPH, as well as comparison of PPH rate to completion of PPH debrief tool.

There are several balancing measures relating to the QI project. First, not all members of the care team may be present for the debrief. This challenge occurs most frequently when the PPH occurs at the change of shift when the care team members switch. Once the shift ends, the team initially involved in the PPH will leave and a new team will take over the care; this prevents a debrief from happening with all members involved without accruing overtime pay for the off-going staff. Secondly, there is a risk of not completing the debrief due to lack of time.

This most often occurs when the patient requires transfer to a higher level of care or when the team must go directly into a new patient assignment or situation due to high census and/or simultaneous emergencies. Lastly, when there is no ANM on shift, there is not a designated person to facilitate the debrief conversation, and thus, it may not be completed. The goal in this situation is to have another member of the care team, such as the lead nurse, department manager, or house supervisor, take over the role of debrief facilitator (see Appendix F).

Ethical Considerations

PPH is an obstetrical emergency, and the care of a patient experiencing a PPH can be emotionally traumatic. Debriefing of PPH cases initiates dialogue for reviewing care provided during a PPH emergency. Staff members involved in the case may not feel comfortable discussing their role in the care in a group setting. Discussion of the case can lead to increased anxiety for the staff members and may also cause recurrence of trauma from past cases that may have similar characteristics. Although it is important to discuss emergencies in order to uncover issues that may have occurred during the case, this discussion can cause emotional distress for those directly involved. Offering private debriefings for cases with bad outcomes may be utilized to ensure all members of the team feel comfortable discussing the case.

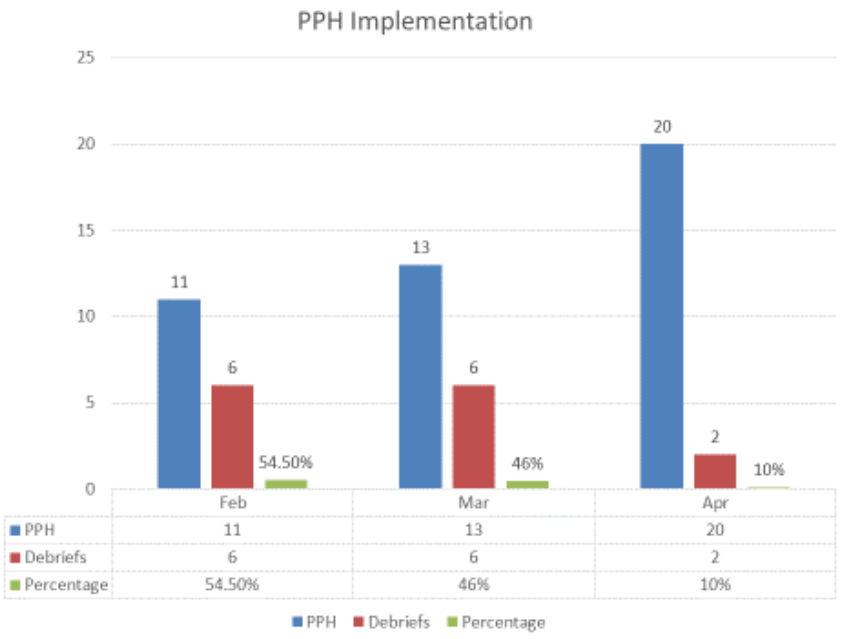
Additionally, reviewing care practices in a group setting can lead to blame and possible accusation of mistakes, if the case went poorly. Although the MCH department promotes a culture of safety, disagreements in care practices and/or miscommunications can lead to confrontation in a group setting. Creating a safe space and ensuring all members of the debrief are willing to participate with respectful and professional communication is essential in ensuring the debrief is positive and constructive.

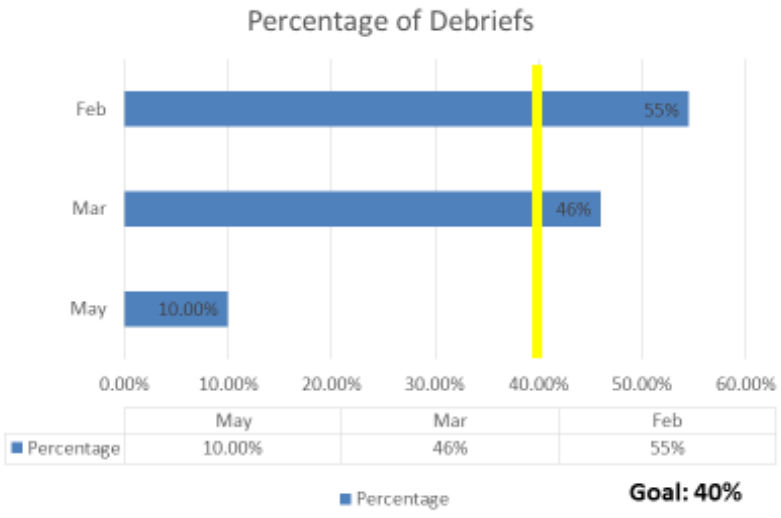
Lastly, the debrief will involve discussing patient care, and thus, it is confidential and should only be discussed with the members of the team directly involved. When reviewing the debriefing forms with the PPH taskforce, the patient identifiers must be removed to ensure patient confidentiality. This project has been approved as a QI project by faculty using QI review guidelines and does not require IRB approval (see Appendix G).

Section IV: Results

The test period began February 1, 2020, and finished April 30, 2020. The staff were educated to inform the ANM on shift of any PPH incidents. The ANMs were instructed to facilitate a debrief after every PPH that occurred in both L&D and postpartum departments. In February, there were 11 PPHs and six completed debriefs. The initial use of the PPH debrief tool went from 0% to 54.5% in the first month of implementation. In March, there were 13 PPHs and six completed debriefs, showing 46% debrief rate. In April, there were 20 PPHs and two debriefs, showing only 10% of the PPHs were debriefed. Overall, during the test period, PPHs were debriefed 32% of the time, which falls below the project aim of 40% (see Appendix H).

Review of the PPH tracking log showed 138 total deliveries in February; 11 of those deliveries resulted in a PPH, putting the monthly percentage at 8.0%. Of these PPHs, five resulted from cesarean section deliveries and six from vaginal deliveries. In March, there were 157 total deliveries and 13 PPHs, putting the rate at 8.3%. Of these PPHs, seven were after a cesarean section delivery and six were after a vaginal delivery. The month of April showed an increase in the number of deliveries at 174 and an increase in PPHs at 20. Additionally, the PPH rate increased to 11.5%. Of these PPHs, 11 were a result of a cesarean section delivery and nine were by vaginal delivery. The overall delivery rate during the 3-month test period was 9.4% (see Appendix H).


PPH Implementation
25
20
15
10
5
0
11
6
54.50%
13
6
46%
20
2
10%
Feb
Mar
Apr
PPH 11 13 20
Debriefs 6 6 2
Percentage 54.50% 46% 10%
PPH
Debriefs
Percentage


Percentage of Debriefs
Feb
Mar
May
55%
46%
10.00%
0.00%
10.00%
20.00%
30.00%
40.00%
50.00%
60.00%
May
Mar
Feb
Percentage 10.00% 46% 55%
Percentage
Goal: 40%

Section V: Discussion

Summary

The implementation of the PPH debrief tool was successful in the first two months of implementation, then had a steep decline in the third month. The target goal of 40% was exceeded in both February and March, then dropped significantly in April. Concurrently, the PPH rate remained steady during February and March, then increased in April. These data could hypothesize that the use of debriefing is beneficial in the reduction of PPH.

The decline in debriefs in April may be associated with the Covid-19 pandemic. During the month of April, the MCH department underwent many trainings focused on the care of Covid-19 patients. In addition, there were daily updates and workflow changes regarding Covid-19. The focus of the MCH department shifted from usual practices to new care strategies. Simultaneously, the census and number of deliveries increased, resulting in a greater number of PPHs, yet fewer completed debriefs. It was noted that the debriefs that were completed during the month of April were facilitated by the PPH taskforce lead; no other ANMs had completed a debrief during that month. This would conclude that the ANMs may have been focused on the other areas of need during this month and did not prioritize PPH debriefing. Ultimately, the results show that PPH debriefing is not a consistent part of the culture within the MCH department.

Lessons Learned

There were several lessons learned from this test of change. It is imperative to ensure a clear communication plan when initiating a change within a large department. This change was to be conducted in two departments with considerably large multidisciplinary teams. Communication to all members of both departments was a challenge. Success may have been

greater if the change focused on one department at a time (i.e., L&D first, then postpartum). When attempting the change with a smaller number of people, communication can be more effective and may have led to greater buy-in from the staff members. Another lesson was to ensure that the change continues to have momentum; to achieve this, additional communication strategies may be warranted. In this QI project, compliance decreased during the last month of change; thus, momentum had been lost. It is important to utilize data and evidence to promote the importance of continuing with change strategies. The lessons taken from this test of change will allow for improved QI approaches moving forward.

There are several additions that will be made to promote the consistent use of the PPH debrief tool. In an effort to ensure the debrief remains a priority for the ANMs, a section has been added to the ANM report hand-off sheet that allows for a check-off of any PPHs that occurred on their shift and whether a debrief still needs to be completed. Additionally, the PPH tracking log has been modified to include a column to document *Yes/No* for whether the debrief had been completed. If the answer is *No*, a comment must be written for why the debrief was not done; this will allow for future process changes if needed (see Appendix E, Figure 2.). Furthermore, the ANM team has committed to using the daily pre-shift huddle to verbally remind the staff about the need to communicate any PPHs to the ANM. This message has also been written on the MCH visual board, which is a board used for reminders and safety concerns. Also, a check box has been added to the L&D lead nurse daily sheet to serve as a reminder to contact the ANM if there were any PPHs. Lastly, the PPH taskforce has added the use of the PPH debrief tool to the annual PPH drill, with the goal of engraining this step into the normal workflow of a PPH (see Appendix I for PDSA Cycles).

Conclusion

PPH debriefing is an evidenced-based practice utilized for quality improvement. Despite lower numbers of completed debriefs, the quality has been exceptional. In review of each completed debrief form, systems issues and practice improvements have been identified. This information is invaluable to the PPH taskforce as the team develops education plans and potential policy changes moving forward. The information provided has led to the discovery of trends, which allows for increased ability to determine PPH risk and early identification of patients who may hemorrhage. In review of the emotional aspect of the PPH debriefs, there has been an overwhelming positive response from the staff, who have voiced appreciation for having the opportunity to discuss their role in emergent situations. Moreover, TeamSTEPPs skills have been practiced, and improved team dynamics have been observed. Ultimately, the benefits of utilizing the PPH debrief tool have been attained.

The PPH taskforce will continue to meet bi-monthly to review the completed debriefing forms and track the PPH data. The annual all-staff education date will allow for review of findings from the debriefs with the staff, and aspects of these findings will be incorporated into the PPH drills. The PPH taskforce will continue to educate the multidisciplinary MCH team about the *why* behind this evidenced-based practice. The taskforce will also share data updates with the department to celebrate wins and/or motivate continued improvement. By utilizing these strategies, the sustainability potential of the use of the PPH debrief tool is high. Ultimately, the PPH taskforce will continue to strive to provide the highest level, evidenced-based care to every patient within the MCH department.

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Section V: Appendices

Appendix A

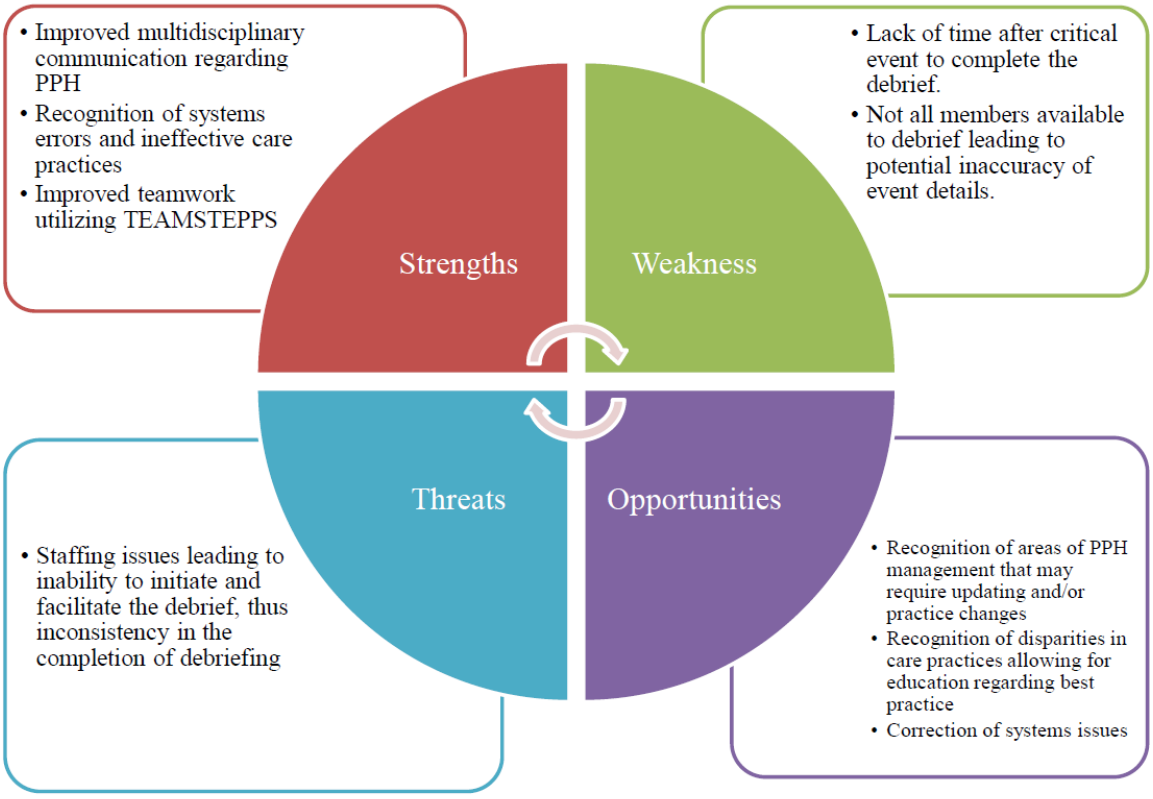
Evaluation Table

Study	Design	Sample	Outcome/Feasibility	Evidence Rating
California Maternal Quality Care Collaborative (2015)	Consensus guideline	None	Evidence-based toolkit to manage postpartum hemorrhage, including standardized debrief tool.	LIVA
Campbell et al. (2016)	Expert opinion	None	Post-event debriefs aide in developing and maintaining a culture of safety. Debriefs have allowed for discovery of systems issues and led to quality care improvements.	LVA
Garden et al. (2015)	Systematic review	8 publications met the inclusion criteria, but 7 were of limited generalizability	The only study that was generalizable found that debriefing by novice instructors using a script improved team leader performance in pediatric resuscitation.	LIC
Main et al. (2017)	Mentor model: innovative collaborative quality improvement approach	99 collaborative hospitals (256,541 annual births) using a before-and-after model with 48 noncollaborative comparison hospitals (81,089 annual births)	• Compared to baseline period, women with hemorrhage in collaborative hospitals experienced a 20.8% reduction in severe maternal morbidity, while women in comparison hospitals had a 1.2% reduction ($P < .0001$). • The rate of severe maternal morbidity among all women in collaborative hospitals was 11.7% lower and women in hospitals with prior hemorrhage collaborative experience had a 17.5% reduction. • 54% of hospitals completed 14 of 17 bundle elements, 76% reported regular unit-based drills, and 65% reported regular post-hemorrhage debriefs.	LVA

Plonien & Williams (2015)	Expert opinion	None	TeamSTEPPS has been proven to increase safety, decrease errors, and improve teamwork in surgical settings.	LVA
Shields & Wiesner (2019)	Expert opinion	None	Reporting is critical in developing response and improvement to maternal hemorrhage. Reporting back to the instruction is multifaceted, including debrief results, compliance, and in-depth review of cases that led to significant maternal morbidity.	LVA
Tannenbaum & Cerasoli (2013)	Quantitative meta-analysis of published and unpublished research on team- and individual-level debriefing	46 samples (*N* = 2,136)	Debriefs improve effectiveness over a control group by approximately 25%. Organizations can improve individual and team performance by approximately 20% to 25% by using properly conducted debriefs.	LIA

Appendix B

SWOT Analysis



Appendix C

Budget

Role	Cost	Number	Total Cost
PPH Task Force RN	$80/hr	4	Six, 2-hour meetings during 2020 calendar year: $3,840
Debrief Tool Forms	Paper and copier ink to maintain copy supply	40 (20 copies L&D, 20 copies Postpartum)	Minimal costs within budget of departmental operational expenses
Annual Department Education and PPH Drill	MCH Education Budget	All MCH Staff	Budgeted within annual education budget- not an extra cost for department

Appendix D

Cost/Benefit Analysis

Item	Description	Cost
LOS of OB/L&D Patient	Per Day	$3,400
LOS of OB/L&D Patient	Average, 2 days	$6,800
LOS of OB/L&D Patient	Extended, 4 days	$13,600

Appendix E

Implementation Tools

Figure 1

CMQCC Debrief Tool

Date: Time: Submitted by:

RECOGNITION	
Was patient assigned a hemorrhage risk? ☐Low ☐Medium ☐High ☐Not done	**Volume of Blood Lost_____ Method:** ☐Formal quantification ☐Visual estimation Both
RESPONSE	
Supplies/cart: Identify opportunities for improvement: ☐Appropriate supplies available ☐Equipment ☐ Medications ☐Blood products ☐ Procedure ☐ Device(s)working properly? ☐ Yes ☐No ☐Other issues?:	**Blood products** Available without delay? ☐Yes ☐No Adequate blood product volume available? ☐ Yes ☐No
TEAMWORK	
Timely Team response? ☐Yes ☐No **All roles filled?** ☐Primary Physician ☐Primary Nurse ☐Charge Nurse ☐Secondary Nurse ☐Documentation ☐Runner ☐Anesthesia **Role clarity?** ☐Yes ☐No **Was there a clear leader?** ☐ Yes ☐No Was there clear communication? ☐ Yes ☐No	

Participants (Name, Role):

Issue(s) or Recommendation(s)

Downloaded from: https://www.cmqcc.org/resource/cpms-hemorrhage-debrief-form

Figure 2

DATE	NAME/MRN	QBL	MODE OF DELIVERY	LOCATION OF PPH	RISK FACTORS	PPH MEDICATIONS USED	BLOOD TRANSFUSION? (Y/N)	DELIVERING PROVIDER	DEBRIEF COMPLETED? (Y/N) IF NO- WHY NOT?

Appendix F

Project Charter

Project Charter: Decreasing Postpartum Hemorrhage within a Maternal Child Health Department.

Global Aim: By December 31, 2020, the annual rate of postpartum hemorrhage of patients delivering their babies in the Maternal Child Health Department, will decrease from 10.8% (total in 2019) to 8%.

Specific Aim: By May 1, 2020, the use of a standardized postpartum hemorrhage critical event debrief tool will increase from 0% to 40% of all postpartum hemorrhages within the Maternal Child Health Department.

Background:

The national incidence of PPH is estimated at approximately 3% of all births (Marshall et al., 2018). A data analysis conducted in a Maternal Child Health (MCH) department of a medium-sized healthcare facility showed the total rate of PPH in the year 2019 was 10.8%. The incidence of PPH within this microsystem is significantly above the national average, indicating there is a substantial disparity in the care provided.

An analysis of the MCH department shows an eagerness for change concerning this quality gap. The MCH staff have voiced safety concerns and inquiries regarding the disproportionate number of PPHs within the microsystem. Providers are treating more obstetrical hemorrhage emergencies and managing longer lengths of stay for their patients. Financially, the budget has been affected by the need to increase staffing ratios due to higher acuity patients; thus, the administration is emphasizing improvement to reduce budget exceeding outcomes. Foremost, the MCH department holds high standards in the quality of care provided; the mission and values of this microsystem are the foundation of the need for change.

Sponsors:

MCH Director
MCH Manager
MCH Department Educator

Goals:

The goal of this project is to implement change and reinforce best practices to ensure the MCH department is providing the highest quality, evidence-based care to every patient. The project will implement the use of an evidence-based standardized debriefing tool to use after every postpartum hemorrhage (PPH). The tool has been adapted from the California Maternal Quality Care Collaborative (CMQCC) Postpartum Hemorrhage Toolkit. The debrief will include all members of the care team involved in the PPH. During the debriefing, the group will discuss the aspects of care that went well, areas that could be improved, systems/supply issues that may have led to a delay in care or negative outcomes, and teamwork dynamics. This debrief will be facilitated by the Assistant Nurse Manager on shift during the hemorrhage. Once completed, the

debrief tool will be collected by the PPH taskforce members and will be reviewed at every bi-monthly meeting. The review will allow for discussion of recommendations for practice changes or correction of systems/supply issues to better manage PPHs and ultimately decrease PPHs from happening in the future.

Measures:

Measure	Data Source	Target
Outcome		
Completion of standardized PPH debrief tool sheet	PPH debrief tool sheet	40%
Process		
ANM on unit will facilitate debrief will all members of the care team.	All care team members will be documenting on PPH debrief tool sheet.	100%
The PPH debrief tool sheets will be kept in the Labor and Delivery and Postpartum units and pulled by the ANM when it is time to debrief.	Copies will be made and filed by the ANMs on the unit.	100% of the time there will be forms filed in the correct location to be used when needed.
Once completed, the debrief sheet will be left in a confidential box for the PPH taskforce members to collect and review.	PPH taskforce will review the completed sheets.	100% of the time it will be left in the confidential box.
Balance		
Not all members of the care team are present for the debrief; thus, the debrief would not provide a full picture of the event and possible inaccuracy of the debrief details.	Names listed on the debrief tool compared to the members of the care team.	< 2 members of the team not present for the debrief.
Not enough time to complete debrief post-critical event.	Debrief tool sheet not completed.	< 40% of the time.
No ANM on shift; thus, there is no one present to facilitate the debrief.	Debrief tool sheet not completed.	< once per week.

Team:

Project Lead
Family Practice MD
OB/GYN MD
OB/GYN MD
CNM
Department Educator
L&D RN
Postpartum RN
Postpartum RN
Postpartum RN
Assistant Nurse Manager
Department Manager

Measurement Strategy:

Background:
By May 1, 2020, the use of a standardized PPH critical event debrief tool will increase from 0% to 40% of all postpartum hemorrhages within the Maternal Child Health Department. The global aim is to decrease the annual PPH rate from 10.8% to 8.0% by December 31, 2020.

Population Criteria: Labor and Delivery and Postpartum patients delivering their babies in the MCH Department. The implementation of the standardized PPH critical event debrief tool will impact the multidisciplinary patient care team with a focus on L&D and Postpartum RNs, certified nurse midwives (CNMs), as well as OB/GYN and Family Medicine providers.

Data Collection Method:

PPH data will be obtained from diagnosis codes obtained by the MCH data analyst to compare baseline data with end-of-year data. Throughout the change process, the MCH Assistant Nurse Managers (ANMs) will also complete a tracking sheet documenting all patients who experience a PPH. These tracking sheets will be reviewed every three months and will allow for the tracking of trends.

The PPH taskforce members will collect the debrief tool sheets after they are completed post-hemorrhage. These sheets will be counted monthly and compared to the number of PPHs tracked that month to determine the percentage of time they are being completed. The debrief information will then be reviewed at the PPH taskforce bi-monthly meetings to determine the need for practice changes, staff education, and/or systems issues corrections.

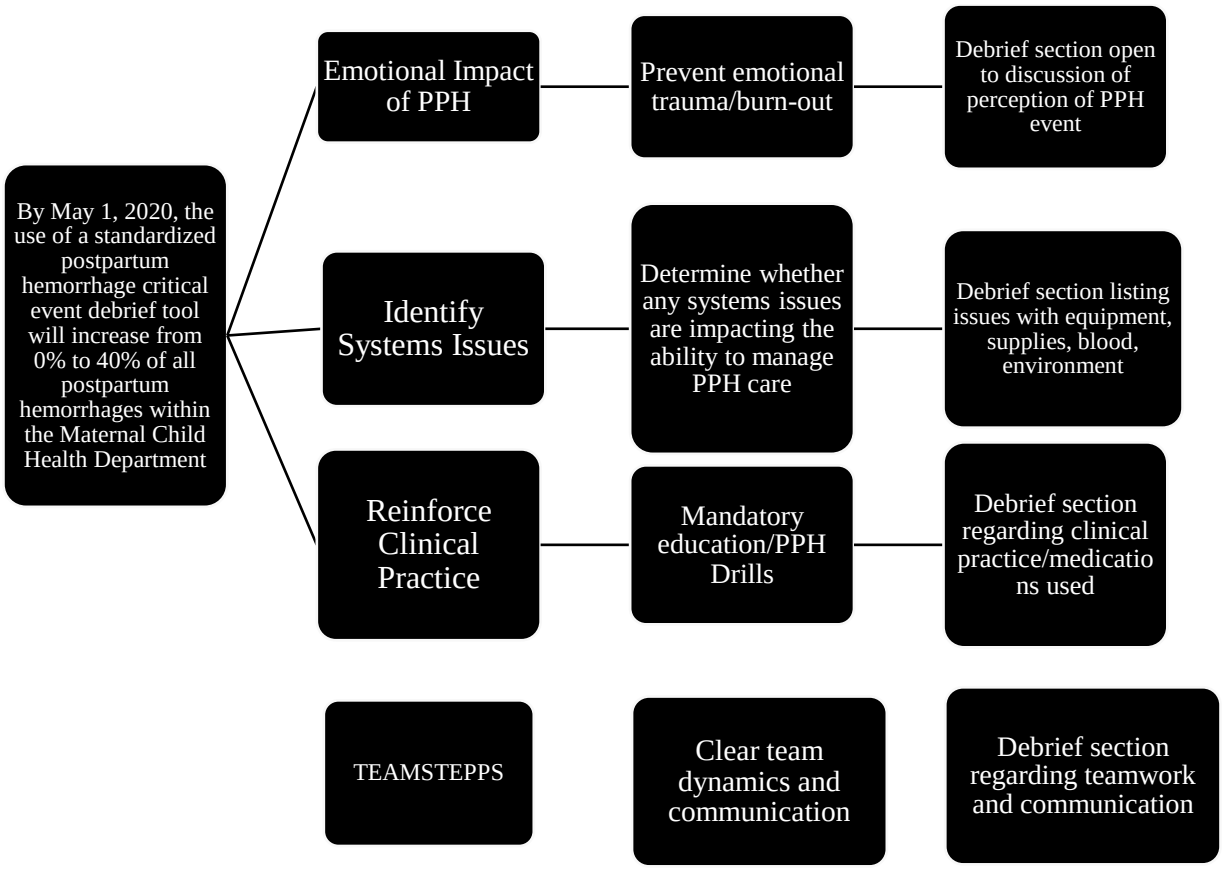
Data Definitions

Data Element	Definition
PPH standardized debrief tool	Adapted from the CMQCC, this tool is a piece of paper that will be used to facilitate a debriefing conversation after a PPH.
CMQCC PPH Toolkit	CMQCC is an evidenced-based toolkit which is the foundation for the policies and procedures KP Santa Rosa uses to manage PPH.

Measure Descriptions:

Measure	Measure Definition	Data Collection Source	Goal
Percentage of PPHs that are debriefed	N = # of debriefs completed D = # of PPHs	PPH debrief tool sheet	40%
PPH Rate	N= # of patients that have a PPH D= # of patients that deliver a baby	ANM Tracking tool in comparison to delivery census	8%

Driver Diagram:



Recommendation for Change:

The PPH taskforce distributed a survey to the L&D and Postpartum staff to gain insight into the perception of the PPH issue in MCH. The survey was completed by 43 staff members: 32 RNs, 3 CNMs, 6 OB/GYN providers, and 2 Family Medicine providers. The results of the survey showed that 73% of participants said they believe that MCH has an increased PPH problem and 62.79% said the focus of the PPH taskforce should be to reinforce the CMQCC practices the MCH department already has in place. Thus, the primary objective of the quality improvement project is to implement the use of an evidence based PPH debrief tool to facilitate a debrief conversation after every PPH. This debrief will allow for the identification of clinical practice issues, systems problems, and/or teamwork, and communication challenges.
The implementation of debriefing will involve the following changes:

- The PPH taskforce will educate all staff about the use of the debrief tool following every PPH. Copies of the debrief tool will be filed in the L&D and Postpartum units. At the time of a PPH, the staff will alert the ANM on duty. The ANM will obtain a debrief tool form to use while facilitating the debrief conversation. The conversation will include all members of the care team and will be completed as soon as safe to do so after the PPH. The completed form will be filed in the ANM office to be reviewed by the PPH taskforce.
- After three months of implementation, the PPH taskforce will review the data from the debrief forms to determine areas for improvement. These areas will be addressed during the annual PPH mock code in June 2020. At this mock code, the department educator will address care practices requiring reinforcement, any practice changes deemed necessary, as well as TEAMSTEPPs skills.
- At the three-month mark, the PPH taskforce will compare the number of debriefings completed to the number of PPHs during that timeframe to determine the percentage of time a debrief is completed. The taskforce will then determine areas of improvement regarding increasing completion percentage if necessary.
- The ANM team will continue to track all PPHs to gather data for the year. At each PPH taskforce meeting, these data, as well as the debrief data, will be reviewed, and evaluated by the taskforce members.

Project Timeline:

	January 2020	February 2020	March 2020	April 2020	May 2020	June 2020	July 2020	August 2020	September 2020	October 2020	November 2020	December 2020
PPH Task Force Meeting												
PPH Task Force introduction of PPH debrief forms, education of staff, role out starting 2.20.2020												
PPH Tracking Sheet/ Data collection												
Implement use of PPH debrief forms after every PPH												
Review details of PPH debrief forms at PPH meeting, determine need for practice changes/systems corrections.												
Review 3-month data of debrief form use percentage and compare to PPH rate.												
PPH Task Force meet to discuss ways to continue/improve usage of PPH debrief forms based on 3-month data.												
Staff education regarding findings of PPH debriefings, data, practice changes and updates at annual PPH drill												
Year-end review, goal setting for 2021												

Clinical Nurse Leader (CNL) Competencies:

The CNL is a change agent, driving patient care outcomes by utilizing evidence-based practice and developing plans of action to accomplish microsystem-specific goals. The CNL is a team manager and acts as a leader amongst multidisciplinary healthcare professionals (American Association of Colleges of Nursing [AACN], 2013). The CNL will be vital in the implementation and success of the PPH QI project within the MCH department.

As an outcomes-manager, the CNL will bring forward data pertaining to the PPH issue to incite buy-in from the key stakeholders. As an educator, the CNL will educate staff about evidence-based practice standards and research to support practice changes and improvement strategies. It will be crucial to utilize a multidisciplinary team to develop goals and establish an action plan. The CNL will assume the role of the team manager for the multidisciplinary QI team. In summary, by utilizing the essential competencies of the CNL role, the CNL will be pivotal in accomplishing the desired outcomes of the PPH QI project.

Reference

American Nurses Association. (2013). *Competencies and curricular expectations for clinical nurse leader education and practice.* http://www.aacnnursing.org/New-Information/Position-Statements-White-Papers/CNL

Appendix G

CNL Project: Statement of Non-Research Determination Form

Student Name: Gigi Gaytan

Title of Project: Decreasing Postpartum Hemorrhage Within a Maternal Child Health Department

Brief Description of Project:

Aim Statement:

A) **Global Aim:** By December 31, 2020, the annual rate of postpartum hemorrhage of patients delivering their babies in the Maternal Child Health Department, will decrease from 10.8% (total in 2019) to 8%.

B) **Specific Aim:** By June 1, 2020, the use of a standardized postpartum hemorrhage critical event debrief tool will increase from 0% to 40% of all postpartum hemorrhages within the Maternal Child Health Department.

B) Description of Intervention: The goal of this project is to implement change and reinforce best practices to ensure the MCH department is providing the highest quality, evidence-based care to every patient. The project will implement the use of an evidence-based standardized debriefing tool to use after every postpartum hemorrhage

(PPH). The tool has been adapted from the California Maternal Quality Care Collaborative (CMQCC) Postpartum Hemorrhage Toolkit. The debrief will include all members of the care team involved in the PPH. During the debriefing, the group will discuss the aspects of care that went well, areas that could be improved, systems/supply issues that may have led to a delay in care or negative outcomes, and teamwork dynamics. This debrief will be facilitated by the Assistant Nurse Manager on shift during the hemorrhage.

C) How will this intervention change practice? Once completed, the debrief tool will be collected by the PPH Task Force members and will be reviewed at every bi-monthly meeting. The review will allow for discussion of recommendations for practice changes or correction of systems/supply issues to better manage PPHs and ultimately decrease PPHs from happening in the future.

Outcome measurements:

Outcome: Completion of standardized PPH debrief tool sheet. Target is 40% of all PPHs are debriefed.

Process: ANM on unit will facilitate debrief will all members of the care team. The PPH debrief tool sheets will be kept in the Labor and Delivery and Postpartum units and pulled by the ANM when it is time to debrief. Once completed, the debrief sheet will be left in a confidential box for the PPH Task Force members to collect and review.

Balance:

- Not all members of the care team are present for the debrief; thus, the debrief would not provide a full picture of the event and possible inaccuracy of the debrief details.
- Not enough time to complete debrief post critical event.
- No ANM on shift; thus, there is no one present to facilitate the debrief.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used:

(http://answers.hhs.gov/ohrp/categories/1569)

☒ This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

☐ This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:

EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST *

Instructions: Answer YES or NO to each of the following statements:

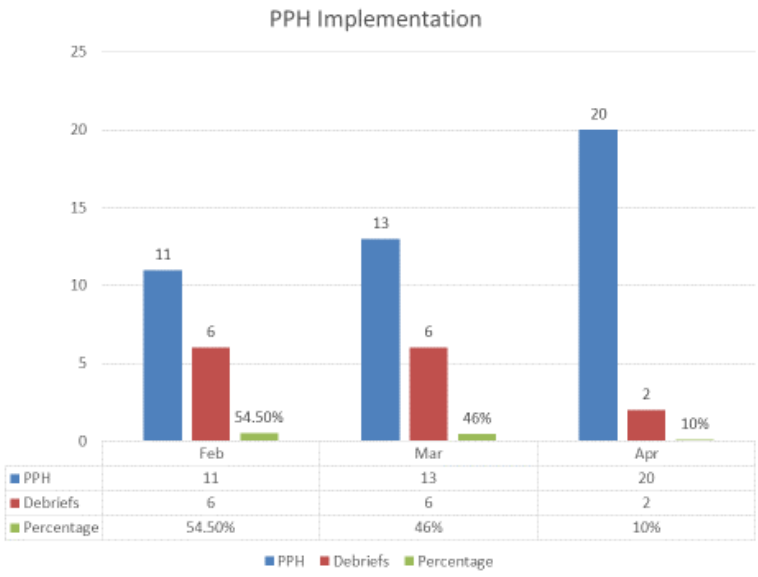
Project Title:	**YES**	**NO**
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	**X**	
The specific aim is to improve performance on a specific service or program and **is a part of usual care**. ALL participants will receive standard of care.	**X**	
The project is **NOT** designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does **NOT** follow a protocol that overrides clinical decision-making.	**X**	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment, or evaluation of the organization to ensure that existing quality standards are being met. The project does **NOT** develop paradigms or untested methods or new untested standards.	**X**	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does **NOT** seek to test an intervention that is beyond current science and experience.	**X**	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	**X**	
The project has **NO** funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	**X**	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., **not** a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	**X**	
If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: *"This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board."*	**X**	

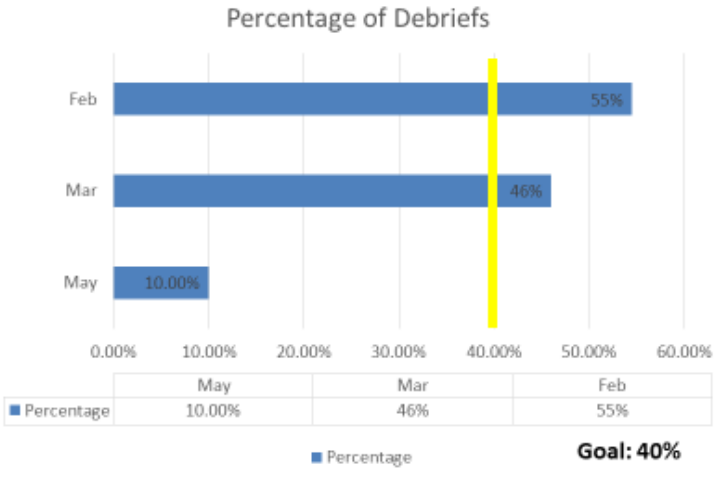
ANSWER KEY: If the answer to **ALL** these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is **NO**, you must submit for IRB approval.

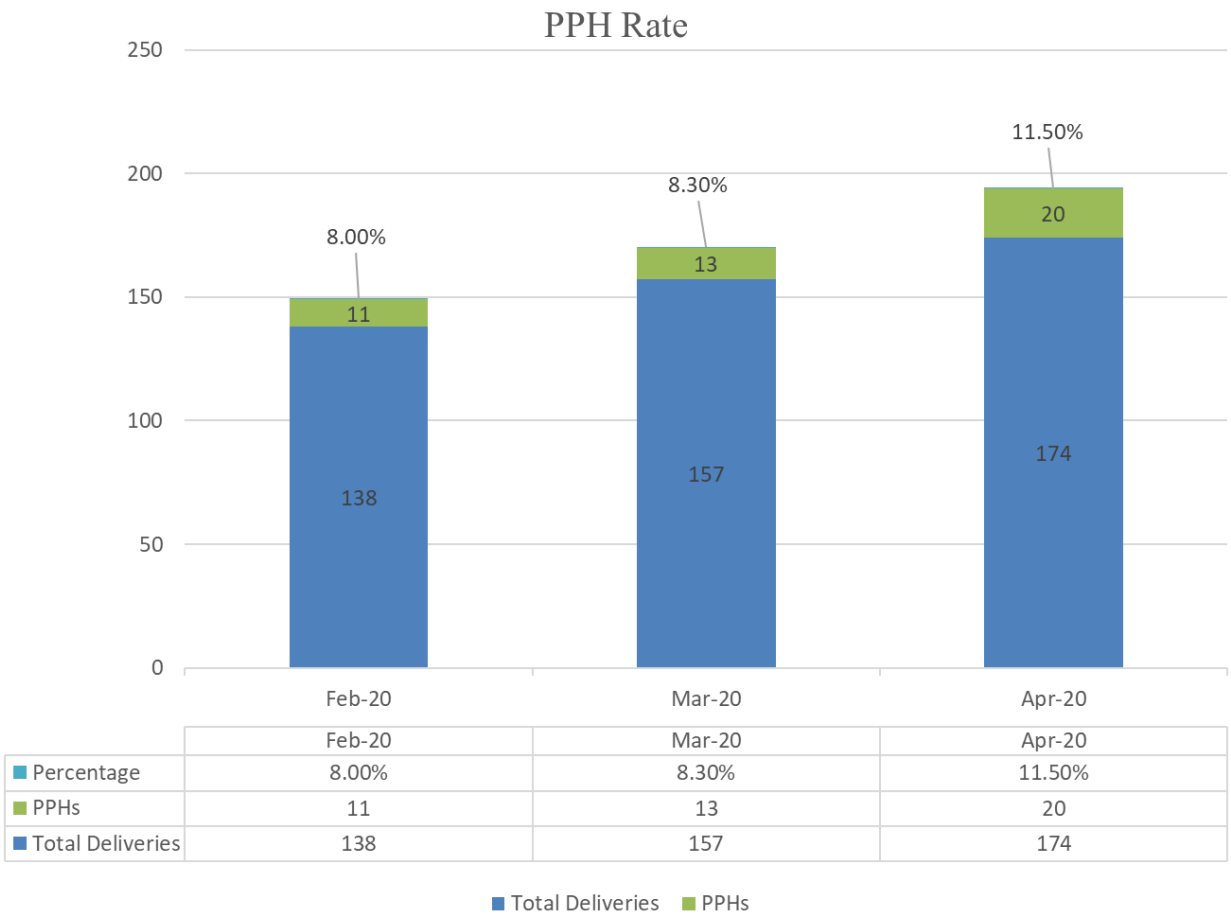
*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

Appendix H

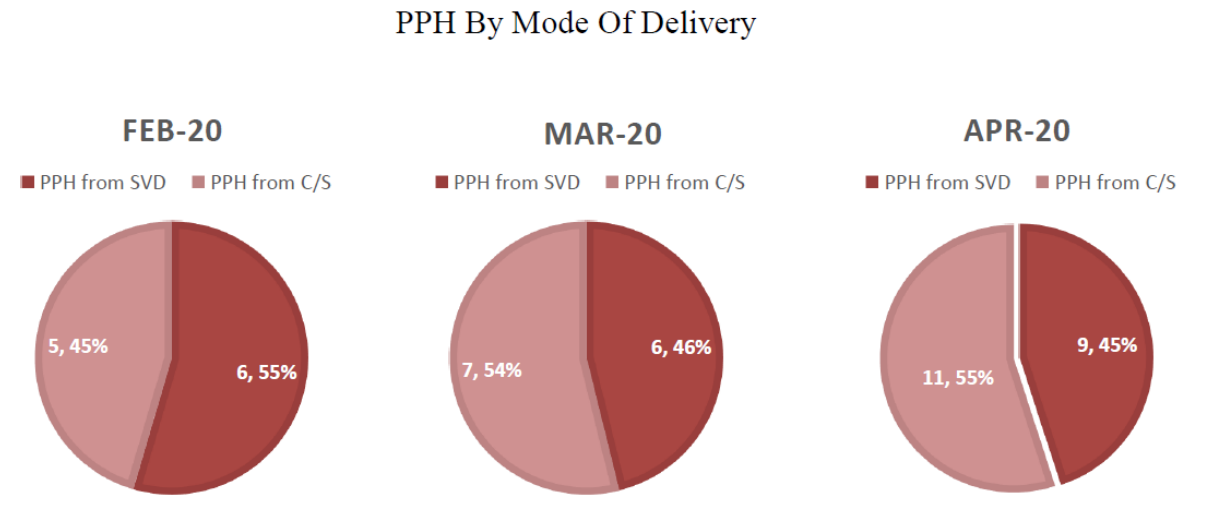
Results







	Feb-20	Mar-20	Apr-20
Percentage	8.00%	8.30%	11.50%
PPHs	11	13	20
Total Deliveries	138	157	174



Appendix I

PDSA Cycle